

REMARKS

The above amendment is made in response to the Final Office Action of October 22, 2003. Claims 17 and 23 have been amended. Claim 31 has been cancelled. Claims 1 and 3-42 are pending in the present application and stand rejected. The Examiner's reconsideration is respectfully requested in view of the above amendment and the following remarks.

The Office Action rejected claims 17-21 under 35 U.S.C. § 112, second paragraph. The Office Action states that claims 17-21 recite the limitation "profile matrix," without sufficient antecedent basis for such limitation in the claim. Claims 17 has been properly amended such that the claim recites the aforementioned limitation. Withdrawal of the rejection of claims 17-21 under 35 U.S.C. § 112, second paragraph, is respectfully requested.

Claims 1, 4-5, 9-12, 16-17, 22-23, 25-26, 30-33, and 37-39 were rejected under 35 U.S.C. § 102(b) as being anticipated by Agrawal *et al.* (U.S. Pat. No. 5,768,500) (hereinafter "Agrawal"). The rejection is respectfully traversed.

Applicants maintain their arguments from their Response to Paper No. 3. In particular, Applicants maintain that the rejections are incorrect. Further, Applicants maintain that the cited references are improperly combined. Applicants further present the following arguments.

It is well-known that to sustain an anticipation rejection, *each and every* claim limitation must be described by the prior art. That burden has not been met here. It is clear that Agrawal does not disclose, *inter alia*, "assisting compilation of the computer program, based upon the profile counts stored in the memory array." The Final Office

Action cites the down-counter 104 of Agrawal as disclosing “storing, in a memory array, profile counts...,” as essentially claimed in claim 1. Agrawal does not disclose “assisting compilation of the computer program” based upon the down-counter 104 of Agrawal. The Final Office Action recites a general statement from Agrawal that “[m]emory system profiles can provide significant assistance in isolating performance bottlenecks and guiding optimization of architectures, operating systems, compilers, and applications.” However, the Final Office Action fails to make a necessary link between the down-counter 104 (what the Final Office Action argues discloses the memory array for storing the profile counts) and “assisting compilation of the computer program.”

Accordingly, claim 1 is believed to be patentably distinguishable in view of Agrawal. Amended claim 23 is believed to be patentably distinguishable for at least the same reasons given for claim 1. Amended claim 23 is patentable distinguishable for the following additional reasons. The Final Office Action cites col. 16, lines 15-27 of Agrawal for disclosing “a scaling circuit adapted to scale the profile counts to prevent profile information overflow.” More specifically, the Final Office Action argues that the “generation of an interrupt at a prespecified value of counter is effective to scale the number of counts to prevent an overflow.” This argument is flawed for at least two reasons. First, the interrupt described in Agrawal is “generated every time the read wait time counter reaches the compare value.” (Agrawal, col. 16, lines 18-19). This interrupt bears no relation with the down-counter 104, which the Final Office Action argues discloses the memory array for storing profile counts. The read wait time counter is for determining the total time a program spends waiting on network reads. Second, even assuming the interrupt could somehow be generated based on a prespecified value of the

profile counts, the interrupt, can only be, at most, a *notice* of an overflow. The interrupt, *per se*, cannot “*scale* the number of counts to prevent an overflow.”

Dependent claims 3-22 and 24-39 are believed to be allowable for at least the reasons given for claims 1 and 23, respectively. Withdrawal of the rejection of claims 1-39 under 35 U.S.C. §102(b) is respectfully requested.

Claims 40-42 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Ammons *et al.*, “Exploiting Hardware Performance Counters with Flow and Context Sensitive Profiling” (hereinafter “Ammons”). The Final Office Action admits that Ammons “did not explicitly teach storing, in a memory array, profile counts...for events associated with the execution of the computer program, the memory array being separate and distinct from the memory hierarchy so as to not perturb normal operations of the memory hierarchy.” The Final Office Action takes Official Notice that it was known at the time of invention to implement systems with additional memory. The Final Office Action further states that it would have been obvious to implement the profiling systems of Ammons with an array of memory for storing the profiling counts. The assertion is entirely unfounded, as a point of novelty for the instant patent application is the use of a memory structure for storing profile information separate from the main memory hierarchy of the processor. (See p. 14, lines 8-13).

It is well-settled that Official Notice is intended for facts which are common knowledge or capable of unquestionable demonstration. Applicants are without knowledge that the facts asserted by the Final Office Action (in claims 40 and 42) as being well-known or common knowledge in the art. Further, Applicants are without knowledge

that the facts asserted by the Final Office Action are capable of instant and unquestionable demonstration as being well-known..

As such, the Final Office Action lacks the necessary evidentiary support to take Official Notice. More specifically, the Final Office Action has failed to show in any references “the storing, in a memory array, profile counts for events associated with the execution of the computer program, the memory array being separate and distinct from the memory hierarchy so as to not perturb normal operations of the memory hierarchy” with respect to “wherein profile information associated with the profile counts describes a typical execution path of the computer program,” as essentially claimed in claim 40. Further, the Final Office Action lacks the necessary evidentiary support to take Official Notice that “it was known at the time of invention to make use of a two-way set associative array,” as essentially claimed in claim 42.

Accordingly, claim 40 is believed to be patentably distinguishable in view of Ammons and Official Notice. Dependent claims 41-42 are believed to be allowable for at least the reasons given for claim 40. Withdrawal of the rejection of claims 40-42 under 35 U.S.C. §103(a) is respectfully requested.

In view of the foregoing remarks, it is respectfully submitted that all the claims now pending in the application are in condition for allowance. Early and favorable reconsideration is respectfully requested.

Respectfully submitted,

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